

**Algebraic Manipulations****Solving Equations**

1) Solve &amp; Check

a)  $3x - 4 = -16$

b)  $\frac{5}{4}x + 2 = 32$

c)  $8 - x = 12$

♦)  $\frac{x}{3} - \frac{1}{4} = 5$

2) Solve &amp; Check

a)  $3x + 10 + 7x = 20$

b)  $9(t - 3) = -3(2t + 4)$

c)  $\frac{3}{4} = \frac{9}{x+2}$

♦)  $\frac{12}{w} = -3$

**Evaluating Expressions**

3) Evaluate

a) for  $x = 2$ :  $8 - 3x$

b) for  $w = 4$ :  $5 - 2(x + 1)$

♦) for  $y = -\frac{2}{3}$ :  $\frac{6}{10}x - \frac{1}{4}$

**Rules of Exponents**

4) Simplify

a)  $x^3 \cdot x^5$

b)  $(x^4)^2$

c)  $(ab)^6$

d)  $\left(\frac{x}{y}\right)^3$

**Adding/Subtracting Polynomials**

5) Add

a)  $x + x$

b)  $x^2 + x^2$

c)  $-(a + b)$

d)  $7 - 3(x + 2)$

♦)  $8x + 13y - 5x$

**Multiplying Polynomials**

6) Multiply

a)  $3a(a + 4)$

b)  $3x(2x^2 - 7x)$

c)  $x^2(x + y)$

7) Multiply

a)  $(a + 4)(a + 5)$

b)  $(x - 3)(x - 5)$

c)  $(4x + 1)(2x - 8)$

d)  $(4x + 3)^2$

**Factoring**

8) Factor

a)  $3a^2 + 12$

b)  $a^2 + 7a + 12$

c)  $x^2 - 3x - 10$

9) Factor

a)  $2x^2 + 11x + 12$

b)  $x^2 - 25$

c)  $3x^3 + 12x^2 - 15x$

**Solving Quadratics by the Quadratic Formula**

10) Solve

a)  $0 = x^2 + 6x$

b)  $0 = x^2 + 10x - 8$

c)  $10 = x^2 + 10x - 6$

♦)  $12 = x^2 + 7x$

**Simplifying Radicals**

8) Simplify

a)  $\sqrt{20}$

b)  $2\sqrt{3} \cdot \sqrt{4}$

c)  $3\sqrt{2} - \sqrt{8}$

d)  $2\sqrt{3} + \sqrt{5}$

♦)  $\frac{10}{\sqrt{5}}$

**Coordinate Geometry****Writing Equations**

1) Write the equation of the line through the given pair of points

a)  $(4, 11)$  &  $(7, 17)$     b)  $(-2, -1)$  &  $(6, 3)$     ♦)  $(-2, 9)$  &  $(6, -5)$

**Graphing Equations**

2) Graph the following equations.

a)  $y = 3x - 2$     b)  $y = -\frac{7}{4}x + \frac{11}{2}$     c)  $y = x$     d)  $y = 3$     ♦)  $x = -2$

3) Graph the following equations.

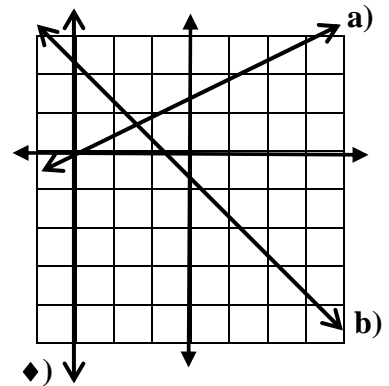
a)  $3x + 4y = 12$     b)  $2x - 3y = 15$     ♦)  $x - 2y = 10$

4) Write the equation of the line shown:

**Parallel & Perpendicular**

5) Write the equation of the that is:

- a) Parallel to line a through
- $(4, 2)$
- 
- b) Perpendicular to line a through
- $(1, 2)$

**Solving Systems by Substitution**

6) Solve

a) $\begin{cases} y = 3x - 6 \\ y = -2x - 1 \end{cases}$	b) $\begin{cases} y = x + 6 \\ y = -x + 4 \end{cases}$	c) $\begin{cases} y = 5x + 2 \\ 3x + y = 10 \end{cases}$	d) $\begin{cases} y = -x + 3 \\ 4x - 2y = 18 \end{cases}$
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**Solving Systems by Elimination**

7) Solve

a) $\begin{cases} x + y = 11 \\ x - y = -1 \end{cases}$	b) $\begin{cases} 2x + 3y = 11 \\ x + 3y = 7 \end{cases}$	c) $\begin{cases} 3x + 2y = 1 \\ x - y = 2 \end{cases}$	♦) $\begin{cases} 3x + 4y = 13 \\ 2x + 5y = 11 \end{cases}$
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**Midpoint**

8) Find the midpoint of the given points

a)  $(1, 5)$  &  $(4, 9)$     b)  $(4, 11)$  &  $(7, 17)$     c)  $(-2, -1)$  &  $(6, 3)$     ♦)  $(-2, 9)$  &  $(6, -5)$

**Distance**

9) Find the distance between the given points.

a)  $(1, 5)$  &  $(4, 9)$     b)  $(4, 11)$  &  $(7, 17)$     c)  $(-2, -1)$  &  $(6, 3)$     ♦)  $(-2, 9)$  &  $(6, -5)$